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Exploring the Humanistic Connotation of Chinese Landscape Painting from a Traditional Philosophical Perspective

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Abstract

Exploring the humanistic connotation of Chinese landscape painting is an effective way to promote the innovative development of contemporary Chinese landscape painting. This paper starts from traditional Chinese philosophical thoughts and compares the differences with Marxist philosophical thoughts. BERT-wwm coding and GAF image coding are used to pre-process the text and image data of landscape painting, and a two-way mask attention mechanism is introduced to capture the emotional information of humanistic connotation in landscape painting, and then a BMAM multimodal emotion analysis model is constructed. Performance comparison experiments and humanistic connotation example analysis are conducted for the constructed BMAM model. From the performance comparison, the average accuracy of BMAM model is 4.99% and 12.42% higher than that of Geo-guided and DNN, respectively. From the humanistic connotation extraction results, the BMAM model only has a deviation of 1~2%. This indicates that the use of BMAM model can realize the analysis of humanistic connotation of Chinese landscape painting, and also provides data support for the innovative development of contemporary Chinese landscape painting.

Keywords: *BERT-wwm coding, two-way mask attention mechanism, BMAM model, Chinese landscape painting, humanistic connotation.*

Introduction

With the continuous reform and opening up of China, China's economy and society have been developed comprehensively, but there are still some problems in the development of Chinese culture, especially in the inheritance and promotion of excellent traditional culture (Lei Z H, 2019; S, 2018; Wang, Shen, Yue, Ma, & Wu, 2022). One of China's outstanding traditional cultures, ancient Chinese landscape painting, is losing many important and valuable connotations as time goes on and on (Geng S, 2018; W. Q, 2019). Many current Chinese landscape paintings remain only at the level of painting and do not reflect the humanistic connotations of today's society. Therefore, there is a need to analyze the humanistic connotations of ancient Chinese landscape painting, learn the techniques used to express them, and raise the level of China's current landscape painting creation so as to continuously improve the status of landscape painting in modern Chinese

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art (C, 2019; HUI & JIA, 2019; W, 2018).

As an important part of China's excellent traditional culture, Chinese landscape painting not only possesses a high aesthetic value, but also its embodied humanistic connotation has important research significance (Liu, Spiridonidis, & Khder, 2022; Z. Q, 2021). The reason why ancient Chinese landscape painting came into being and possessed different humanistic connotations in different eras is mainly inseparable from the social climate and Chinese philosophical thought at that time in China f(P, 2018; W. S, 2019).

Ancient Chinese landscape painting with its highly researched humanistic connotations and aesthetic values has become a hot topic of current research. The literature (Shi, 2020) discusses how to innovate and expand the forms of Chinese landscape painting in the contemporary context, how to effectively convey the painter's emotions and thoughts in the expression, and how to accept and recognize Chinese landscape painting in the international arena. The literature (Qiao, 2020) discusses that in the process of urban habitat construction, it is important to know how to use the humanistic spirit embedded in traditional Chinese landscape painting to achieve a construction pattern in which the habitat and the urban landscape echo each other, and also help Chinese landscape painting achieve heritage and innovation. According to literature (C. J. S, 2019), landscape painting is the most accomplished and influential typical representative of traditional Chinese painting, and its pictorial patterns, aesthetic meanings, philosophical implications and many other qualities have a very important position in the history of Chinese art and even in the history of world art. In addition, literature (Y, 2020) suggests that Chinese landscape painting is a complex and rich part of the Chinese art and culture system, and it is meaningless to discuss the philosophical aesthetic ideas and artistic expressions of Chinese landscape painting in isolation from this ever-changing cultural ecology. On the basis of analyzing the philosophical connotation of landscape painting, literature (J, 2019) made a preliminary discussion on the connotation of landscape spirit from a philosophical perspective, proposing the truth of "the unity of heaven and man", the goodness of "the unity of knowledge and action", and the beauty of "the unity of emotion and goodness The concept of landscape spirit is proposed from the perspective of "the unity of heaven and man", "the unity of knowledge and action" and "the unity of love and goodness". The literature (T, 2019) takes the color tones of landscape cities as the research object, uses the principles of color science, summarizes the basic color matching methods to coordinate with the natural environment tones, and tries to summarize some color tones matching schemes suitable for landscape cities through the perceptual and rational research on the color moods and tones of Chinese landscape paintings. In order to explore the humanistic connotation of Chinese landscape painting from the perspective of traditional philosophy, this paper first analyzes and explains the connection between z traditional Chinese philosophy and landscape painting. It includes the difference between traditional Chinese philosophical thought and Marxist philosophical thought, and also introduces the humanistic connotation that exists in Chinese landscape painting. Then, based on the emotional characteristics of the humanistic connotation of

Chinese landscape painting, a BAMA multimodal emotion analysis model based on BERT-wwm coding and GAF image coding, and introducing a two-way mask attention mechanism, is constructed. Finally, an arithmetic analysis and application analysis are conducted for the BMAM model. From the analysis results, the BMAM model can realize the analysis of the humanistic connotation of Chinese landscape painting, and then promote the innovative development of contemporary Chinese landscape painting.

The connection between traditional philosophy and Chinese landscape painting

This chapter focuses on the inseparable spiritual intersection between traditional Chinese philosophical thought and Chinese landscape painting, as a way to provide a theoretical basis for the later analysis of the humanistic connotation of Chinese landscape painting from the perspective of traditional Chinese philosophical thought.

Traditional Chinese Philosophy

Traditional Chinese Philosophical Thought

Chinese philosophy reflects the unity of the human spirit and all things in heaven and earth, emphasizes the "unity of heaven and man", and advocates the "inner sage and outer king". Through the cultivation and pursuit of one's own moral essence, one can realize the political ideal of ruling the country and pacifying the world, which leads Chinese philosophy to a philosophy of moral mind. The oneness of all things in Chinese philosophy is a system of creation, not from the bottom to the top, but from the top to the bottom, one and ten thousand, ten thousand and one. From the One Reason, all things are created, and all things return to the One Reason, which is the mode of constructing the Oneness of All Things and reflects the rounded character of Chinese philosophy. Wang Yangming pointed out in his "Transcripts" that the conscience of man is the conscience of grass, wood, tiles and stones. Why can grass, wood, tiles and stones be the same as human beings? It is because they share the same reason, which is the conscience in my heart, and everything comes from my heart and is presented in my heart, so everything is one with me. The structure of traditional Chinese philosophical thought is shown in Figure 1.

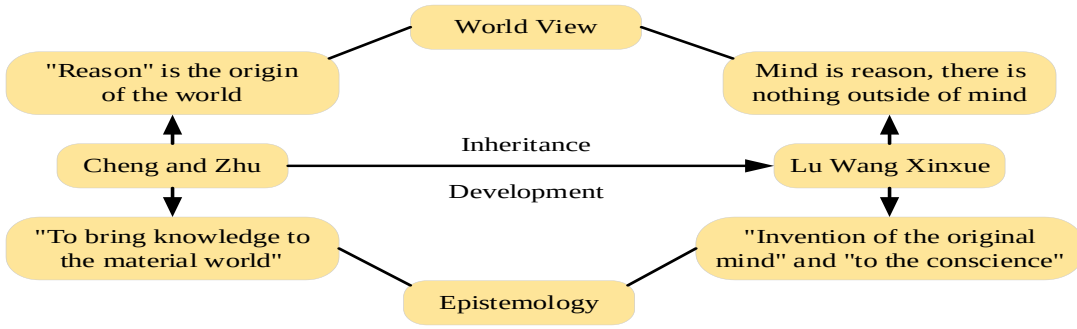

Figure 1. Traditional Chinese Philosophical Thought Structure

The difference between traditional Chinese philosophy and Marxist philosophy

Marxist philosophy takes practice as a bridge between the subjective world and the objective world and creatively transforms dialectics, breaking through the limitations of the previous Hegelian dialectics which only stood at the level of self-consciousness.

It connects the subjective world of man with the objective world, pulling man, who used to think only at the level of self-consciousness, from the subjective world to the objective world, thus revealing the original face of the dialectic of the objective world. Its basic ideological structure is shown in Figure 2.

Traditional Chinese philosophy, on the other hand, is mostly a philosophy of moral values, a transcendent pursuit of the inner life and moral world. As the root of the moral pursuit, its source is to follow the Way of Heaven, the root of this, and the role of humanity is to manifest the Way of Heaven, while the Way of Heaven needs to be embodied by human beings, so "The Way of Heaven is not far from human beings," as stated in The Mean.

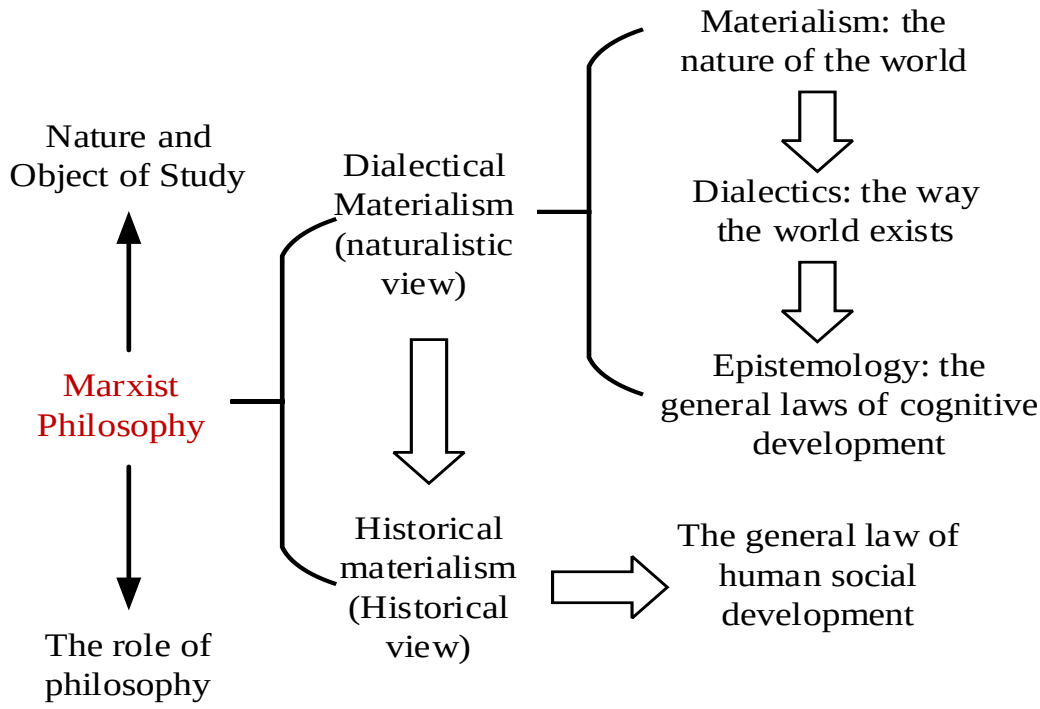

Figure 2. Marxist philosophical thought

Although the practice of Chinese philosophers is also based on the objective material world and social relations, its purpose is not focused on understanding the world and transforming it, as in

Marxism. Rather, it is dedicated to regulating one's practical behavior through the rituals of moral practice, so as to correct one's mind and sincerity, thereby clarifying one's inner heart of virtue, enhancing one's inner moral cultivation, establishing the law of moral self-discipline, and realizing the transcendent pursuit of inner morality.

Philosophical ideas in Chinese landscape painting

Chinese landscape painting

Ancient Chinese landscape painting can be traced back to the earliest days before the Warring States. It was nourished in the Eastern Jin Dynasty, established in the Northern and Southern Dynasties, and flourished in the Tang Dynasty. As an important part of ancient Chinese art, landscape painting was a relatively popular choice of painting in the creative process of painters. The social climate formed by different dynasties in ancient China had an important influence on the creation of painters at that time.

Under the impact of the wave of thought of the hundred schools of thought, ancient Chinese landscape painting reflected the philosophical thoughts of ancient Chinese society in different periods. Therefore, in the process of creation, many painters incorporated Chinese philosophical thoughts in the process of portraying objects or scenes such as landscapes.

An in-depth study of the important humanistic thoughts in ancient Chinese landscape painting is enlightening for the creation of contemporary landscape painting.

The Humanistic Connotation of Chinese Landscape Painting

(1) Manifesting the inner world of the literati and scholars

Ancient Chinese landscape painting has evolved and changed in the course of history, and literati painting is a special but major branch. Therefore, the inner world of the literati and scholars of the time can be analyzed through ancient Chinese landscape paintings. Many literati and scholars had some white space in the process of creation, which left a fresh and hazy beauty to the viewers visually and could leave a deep impression with endless aftertaste.

(2) Reflecting the social customs of the time

Through the creation of landscape painting, the face of people's life in different dynasties is well expressed, and the portrayal of different figures and landscapes can largely restore the social customs of the time, and "Qingming Shanghe Tu" has such distinctive features.

(3) Reflection of the painter's feelings of seclusion

The painter was deeply influenced by Confucianism when creating landscape paintings, and to a large extent, he not only loved the landscape out of his heart, but also yearned for a peaceful and leisurely life.

Therefore, in the process of creating landscape paintings, the artist showed a retreat from social

fame and fortune, while pursuing and yearning for the natural world.

A multimodal emotional analysis model of the humanistic connotation of Chinese landscape painting

Multimodal Sentiment Analysis

For ancient Chinese landscape paintings, there are a large number of landscapes and textual descriptions in their pictures. In the process of conducting humanistic connotation analysis of Chinese landscape paintings, the emotions expressed by their humanistic connotations are usually extracted from the transcribed textual information and image features. The process is shown in Figure 3.

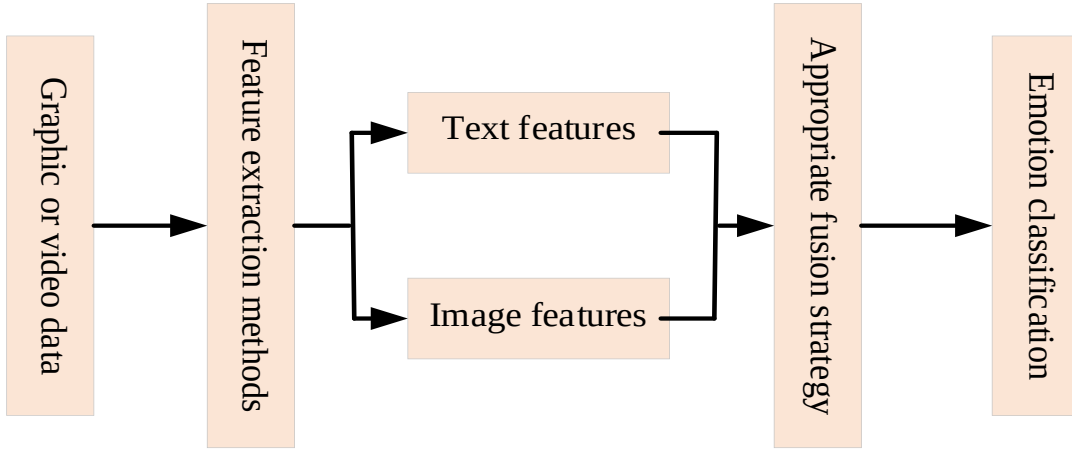

Figure 3. Multimodal sentiment analysis

The specific process of general multimodal sentiment analysis is: firstly, the corresponding text features and image features are extracted from the graphic or video content using feature extraction methods.

Then a suitable feature fusion strategy is used to fuse the multimodal information, and finally the fused information is fed into the sentiment classifier for sentiment polarity discriminations.

The extraction of emotional information of humanistic connotation of Chinese landscape painting is mainly to convert unstructured text, images or video clips into structured data that can be recognized and processed by computers, thus better serving the higher level research of emotional analysis of humanistic connotation and obtaining valuable information.

BMAM-based multimodal sentiment analysis model

In order to extract the humanistic connotation features of Chinese landscape paintings more directly and effectively, this paper proposes a two-way masked attention mechanism for sentiment analysis model (BMAM), whose basic structure is shown in Figure 4.

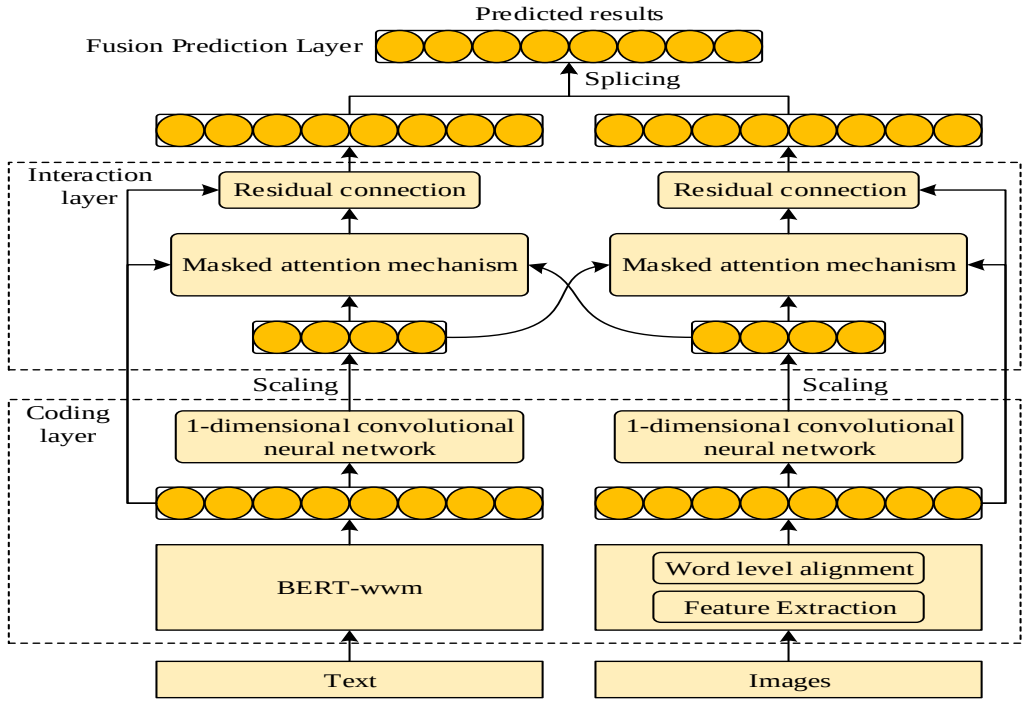

Figure 4. Framework diagram of BMAM algorithm model

The BMAM model consists of three main modules, namely, the coding layer, the bidirectional mask attention layer, and the fusion prediction layer. First, the coding layer is used to extract independent embedding representations of image and text modalities. After that, the bidirectional mask attention layer enhances the sentiment information of each modality itself by masking attention in both directions to obtain deeper semantic representation of the modality. Finally, the fusion prediction layer aggregates the enhanced modal representations to complete the classification of the sentiment information.

Coding layer

(1) Text Encoding

In this paper, we use the BERT model with full word coverage as the encoder to extract features from the text input. Following the pre-processing method of BERT-wwm, for each text sequence, we first add "CLS" and "SEP" tags at the beginning and end of the sequence respectively to form the model input format of $T = [t_{CLS}, t_2, ..., t_{SEP}, ..., t_N]$. "CLS" is "Classification", which is used for final sentiment classification, and "SEP" is "Segmentation". Segmentation" is the segmentation label, which represents the end of the sentence here, and N is the fixed sequence length. Then, the text sequence is encoded in the pre-trained BERT-wwm model, and the semantic

representation of the text sequence is obtained as $X^t = [x_{CLS}^t, x_2^t, ..., x_N^t]$. The computational expression is:

$$X^t = BERT_{wwm}(T) \quad (1)$$

where, $X^t \in \mathbb{R}^{N \times d}$, each input character is represented as a vector of d dimensions x_i^t.

Since the dimensionality of the BERT-wwm encoded text representation representation is too large, it puts a great burden on the computational efficiency of the algorithm. In order to reduce the computational cost, this paper uses a one-dimensional convolutional neural network to reduce the dimensionality of the encoded text representation. The computational expressions are as follows:

$$\hat{X}^t = Conv1D(X^t, k^t) \quad (2)$$

where $\hat{X}^t \in \mathbb{R}^{N \times d'}$, k^t denote the convolutional kernel of the convolutional neural network, which is used to capture the local features of the encoded vector.

(2) GAF image coding

The principle of GAF image coding method is to compute the linear correlation of a set of vectors using Gram matrix to encode a time series into a two-dimensional image and retain the time information contained inside the time series.

For a given time series $X_0 = \{x_1, x_2, ..., x_n\}$, the time series is first deflated so that all the values within the time series are deflated into the interval $[-1,1]$ or $[0,1]$, and the deflated equation is:

$$\begin{cases} \tilde{x}_{-1}^i = \dfrac{[x_i - \max(x_0)] + [x_i - \min(x_0)]}{\max(x_0) - \min(x_0)} \\ \tilde{x}_0^i = \dfrac{x_i - \min(x_0)}{\max(x_0) - \min(x_0)} \end{cases} \quad (3)$$

Encode all values $\tilde{x}_{-1}^i$ or $\tilde{x}_0^i$ within the deflated time series $\tilde{X}_0$ as angular cosine α, and encode time node t_i as radius R, and encode the computational expression as:

$$\begin{cases} \alpha = \cos^{-1}(\tilde{x}_i), -1 \le \tilde{x}_i \le 1, \tilde{x}_i \in \tilde{X}_0 \\ R = t_i / N, t_i \in N \end{cases} \quad (4)$$

where N is a constant factor in the tensor space of the regularized polar coordinate system. When $\alpha \in [0, \pi]$, $\cos\alpha$ is monotonic and over time, there is one and only one result of the mapping of values to the polar coordinate system after deflation. The advantage of this approach over the Cartesian coordinate system is that the absolute time relationship is preserved through the R in the polar coordinate system.

Two-way masked attention layer

In order to study this interaction between multimodal sequences, a bidirectional mask attention mechanism is proposed in this paper, and Figure 5 shows the mask attention structure from image to text direction. The bidirectional mask attention introduces the sentiment information of one modality into the other modality through an adaptive method, and enhances the sentiment representation of each modality by reasonably adjusting the self-attention weights of the current modality, which helps the model capture richer sentiment information in subsequent sentiment decisions.

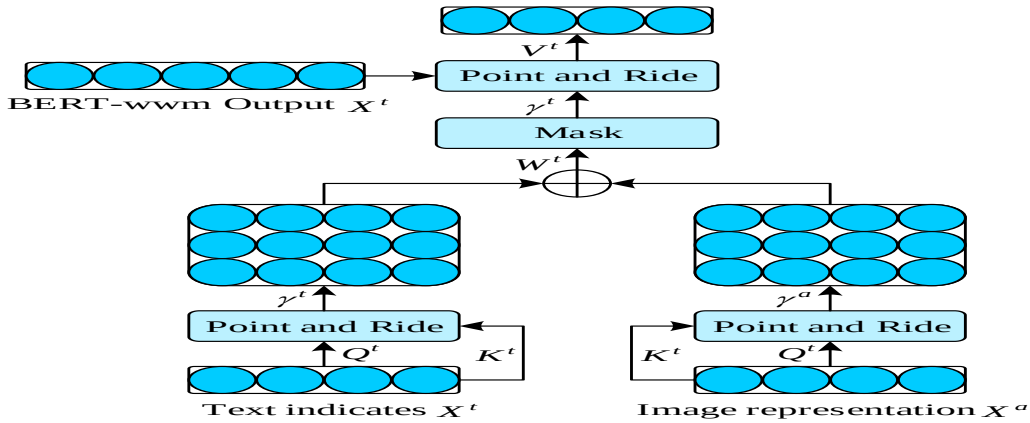

Figure 5. Masked attention structure from image to text direction

Specifically, this paper first scales the coded representation $\hat{X}^t$ of text and the coded representation $\hat{X}^a$ of speech using $L2$ parametric normalization to unify the coded representations of the two modalities on a single measure, the process is denoted as:

$$\begin{cases} \hat{X}^t = \dfrac{\hat{x}^t}{\sqrt{\| \hat{x}^t \|_2}} \\ \hat{X}^a = \dfrac{\hat{x}^a}{\sqrt{\| \hat{x}^a \|_2}} \end{cases} \quad (5)$$

where $\sqrt{\|\cdot\|_2}$ is the $L2$-parametric function and $\hat{X}^t$ and $\hat{X}^a$ denote the scaled modal encoding representation.

For the text modality, two variables Q^t and K^t, numerically the same as $\hat{X}^t$, are set to calculate the self-attentive matrix $\gamma^t \in ¡^{N\times N}$ for the text modality using matrix dot product, which represents the correlation of each word with other words in the discourse. Similarly, for the image modality, the variables Q^a and K^a are set, numerically the same as $\hat{X}^a$, and the self-attentive matrix of the speech modality is calculated using matrix dot product $\gamma^a \in ¡^{N\times N}$. The expressions are calculated as follows:

$$\begin{cases} \gamma^t = Relu(Q^t * K^t) \\ \gamma^a = Relu(Q^a * K^a) \end{cases} \tag{6}$$

The meaning of the attention mechanism is to rationalize the attention of the current modality to its own emotional features by introducing information from another modality. To achieve this goal, the weighted attention matrices W^t and W^a are obtained by weighted summation of the self-attention matrix γ^t of the text modality and the self-attention matrix γ^a of the image modality, which are calculated as follows:

$$\begin{cases} W^t = \sigma_t * \gamma^t + \sigma_a * \gamma^a + b_t \\ W^a = \lambda_t * \gamma^t + \lambda_a * \gamma^a + b_a \end{cases} \tag{7}$$

Where, $\sigma_t, \sigma_a, b_t, \lambda_t, \lambda_a, b_a$ are learnable network parameters, σ_t, λ_t denotes the text modal weight, σ_a, λ_a denotes the image modal weight, b_t, b_a is the bias value, $W^t \in ¡^{N\times N}$ and $W^a \in ¡^{N\times N}$ will be used for the interaction in two directions: image to text and text to image, respectively.

In order to reduce the effect of complementary zero padding on the attention mechanism, this paper introduces two mask matrices, namely:

$$\begin{cases} U^t = \{u^t_{CLS}, u^t_2, ..., u^t_N\} \in ¡^{N\times N} \\ U^a = \{u^a_{CLS}, u^a_2, ..., u^a_N\} \in ¡^{N\times N} \end{cases} \tag{8}$$

where each row vector u_i^t, u_i^a of the matrix satisfies the following conditions:

(1) All zeros when the mode is characterized by the presence of the feature at position i.

(2) All negative infinity when the features of the modality at position i are filled by the complementary zeros.

Then, the sum of the mask matrix and the weighted attention matrix is calculated by the $Softmax$ function, which can transform all the attention features filled with the complementary zero term to 0, thus avoiding the influence of the filler term on the final sentiment decision of the algorithm. The process can be expressed as:

$$\begin{cases} \hat{\gamma}^t = Softmax(W^t + U^t) \\ \hat{\gamma}^a = Softmax(W^a + W^a) \end{cases} \quad (9)$$

Then $\hat{\gamma}^t \in ¡^{N\times N}, \hat{\gamma}^a \in ¡^{N\times N}$ is the final modal attention weight matrix, which is multiplied by the semantic representation of the modality itself $\hat{X}^t$ and $\hat{X}^a$, respectively, to obtain the common sentiment in the other modality.

$$\begin{cases} V^t = \hat{\gamma}^t * \hat{X}^t \\ V^a = \hat{\gamma}^a * \hat{X}^a \end{cases} \quad (10)$$

Finally, to preserve the emotional properties of the modes themselves, this paper uses a residual connection for nonlinear variation of the modal representation. The residual connection consists of a summation operation and a normalization operation, and the formula is expressed as follows:

$$\begin{cases} H^t = LayerNorm(X^t + V^t) \\ H^a = LayerNorm(X^a + V^a) \end{cases} \quad (11)$$

Among them:

$$\begin{cases} H^t = \{h_{CLS}^t, h_2^t, ..., h_N^t\} \in ¡^{N\times N} \\ H^a = \{h_{CLS}^a, h_2^a, ..., h_N^a\} \in ¡^{N\times N} \end{cases} \quad (12)$$

The first identifiers h_{CLS}^t and h_{CLS}^a of the modalities are global representations obtained based on intra-modal characteristics and inter-modal commonality learning, which will be used for the final sentiment category prediction.

Fusion prediction layer

The sentiment information contained in each modal representation has been effectively enhanced by bi-directional masking attention. Therefore, the multimodal hybrid sentiment vector for the final sentiment decision can be obtained by simply stitching the enhanced modal global representation vectors during the multimodal fusion process $h \in ¡$.

$$h = [h_{CLS}^{t}, h_{CLS}^{a}] \quad (13)$$

Then, h is passed into a multilayer perceptron to complete the final sentiment classification. The MLP used in this experiment consists of a 2-layer fully connected neural network, where the first layer uses $Tanh$ as the activation function and the second layer performs category mapping through $Softmax$. The formula is as follows:

$$\begin{cases} h' = Tanh(W_h * h + b_h) \\ \hat{y} = Softmax(W_{h'} * h' + b_{h'}) \end{cases} \quad (14)$$

Finally, all parameters of the BMAM model are optimized by minimizing the cross-entropy loss function, denoted as follows:

$$\zeta = -\sum_{C=1}^{C} y_C * \log \hat{y}_C \quad (15)$$

where $W_h, W_{h'}, h, h'$ are all trainable network parameters, C is the number of sentiment categories to be identified, and $\hat{y} = \{\hat{y}_1, \hat{y}_2, ..., \hat{y}_C\} \in ¡^{C}$ each value $\hat{y}_C$ represents the prediction probability of the model for each category when the input multimodal sequence is c for the correct sentiment category $y_c = 1$ and $y_c = 0$ otherwise.

In summary, when analyzing the humanistic connotation of Chinese landscape paintings, the whole picture of Chinese landscape paintings is restored by technical means, and then the text features and image features extraction methods are used to encode the Chinese landscape paintings. Finally, the processed data are input into the BMAM model, and the data are visualized and analyzed to restore the humanistic connotation of Chinese landscape paintings.

Calculation example analysis

In order to verify the effectiveness of the BMAM multimodal sentiment analysis model constructed in this paper in analyzing the humanistic connotations of Chinese landscape paintings, this chapter focuses on comparative experimental analysis and example analysis using the model.

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Experimental environment and parameter settings

This experiment uses Ubuntu 18.14 as the operating system and Python 3.8 as the programming language, and an NVIDIA GTX-1080Ti graphics card to provide deep learning GPU acceleration services. This experiment transforms each manually transcribed text message into a 768-dimensional word embedding representation using the open-source full-word coverage BERT model base version. The image signal is preprocessed by the publicly available COVAREP and P2FA toolkits to obtain a shallow representation of 74 dimensions. The representation dimensionality of the two modalities is mapped to 30 dimensions using a 2×2 convolution kernel. To prevent overfitting, a Dropout of 50% is set. This experiment uses the Adam optimization algorithm to train the model with an initial learning rate of 0.00004, and the learning rate maintains a decay of 0.9 ratio during training but does not go below 0.00002. The input text sequence length and the number of image sub-frames in training are 200, and the batch size is 35.

Experimental results on the Multi-PIE database

For the Multi-PIE database we divided it according to different angles and expressions, and 70% of the 166,452 images were taken as the training set and the remaining 30% as the test set, of which we selected images of 8 types of expressions for a ten-fold cross-validation test. The BMAM multimodal sentiment analysis model constructed in this paper is compared and analyzed with other analysis models, and its analysis results are shown in Figure 6. From the ten-fold cross-validation comparison test, the average accuracy of the BMAM multimodal sentiment analysis model constructed in this paper is 93.04%, which is 4.99%, 12.42%, 12.89%, and 12.08% higher than Geo-guided, DNN, GAN-based, and MTL-TP-GAN, respectively. This indicates that the BMAM multimodal sentiment analysis model has better performance and can achieve more accurate feature extraction when performing humanistic connotation analysis of Chinese landscape paintings, making the humanistic connotation features more specific and the humanistic connotation can be more intuitively obtained from the data.

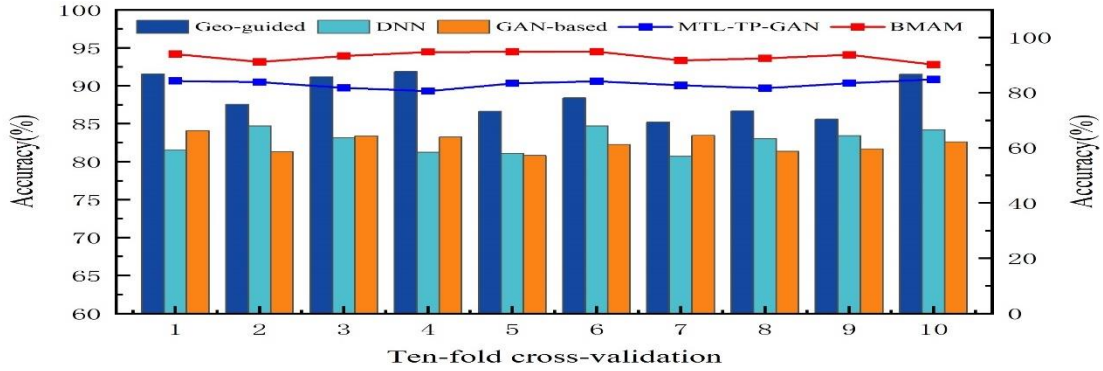

Figure 6. Comparative test analysis results

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Analysis of the application of the humanistic connotation of Chinese landscape painting

Based on the previous comparative experimental analysis of the BMAM multimodal sentiment analysis model, this section collects numerous data on Chinese landscape paintings on the Internet and performs humanistic connotation identification analysis of Chinese landscape paintings with BMAM, resulting in the confusion matrix shown in Figure 7.

From the experimental results of the application of BMAM multimodal emotion analysis model in the humanistic connotation analysis of Chinese landscape paintings, it can be seen that the humanistic connotation analysis can be effectively conducted for Chinese landscape paintings by BMAM model, and a variety of humanistic connotation emotions can be identified from Chinese landscape paintings, such as freshness and haziness, social style, feeling of time and sadness, spiritual trust, local customs, simplicity and introversion, grace and elegance, and tranquility and indifference. This also shows that Chinese landscape painting is rich in humanistic connotations, which can provide creative inspiration for contemporary Chinese landscape painting and realize the heritage and innovation of Chinese landscape painting.

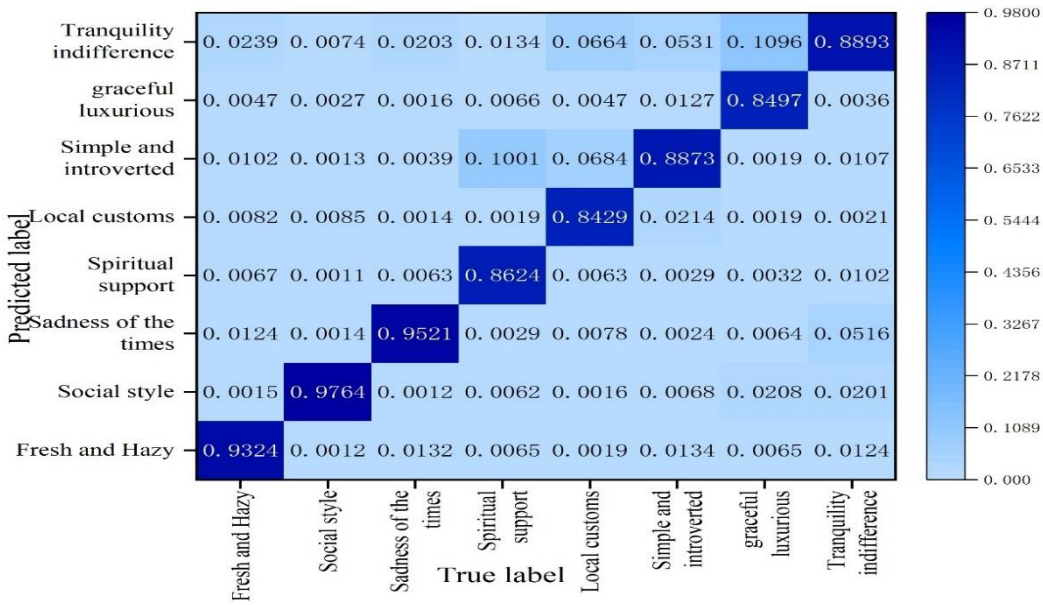

Figure 7. Human content identification analysis

In terms of the humanistic connotation of sober and hazy, the correct recognition rate of the model in this paper is 93.24%, and there is only about 1% probability that it will be incorrectly recognized as sentimental, simple and introspective and tranquil and indifferent. This is due to the fact that ancient Chinese landscape painting is more based on the traditional philosophical thought of the unity of heaven and man, which makes it possible for ancient Chinese landscape painting to have

some scenes with similar scenery in the process of expressing the mood, thus leading to the misrecognition of the BMAM model.

From the humanistic connotation of social style, the correct recognition rate of the model in this paper is 97.64%, and there is about 2% probability that it will be incorrectly recognized as graceful and noble and tranquil and indifferent. This is due to the fact that the creators of ancient landscape paintings were more likely to create with the social atmosphere of the time, and there might be images of dignitaries playing in the landscape, in which the detailed descriptions made the model make a wrong judgment.

In terms of the humanistic connotation of sentimentalism, the model in this paper has a correct recognition rate of 95.21%, with only about 1% probability of misidentifying it as fresh and hazy, and local customs. This indicates that in the process of creating ancient landscape paintings, the scenes of falling flowers and flowing water often caused the landscape paintings to present diverse characteristics.

In terms of the humanistic connotation of tranquility and indifference, the model in this paper correctly identifies 88.93%, with a 2% probability of incorrectly identifying them as sober and hazy and sentimental. This is due to the fact that ancient landscape paintings are more reflective of the artist's dissatisfaction with the current society and his aspiration for a peaceful and indifferent society, and their connotations are closer to those of sober and hazy and sentimental.

In conclusion, the BMAM multimodal emotion analysis model can effectively realize the analysis of the humanistic connotation of ancient Chinese landscape paintings, and show the influence of traditional Chinese philosophical thought and social style on the creation of ancient landscape paintings through intuitive data.

Conclusion

Traditional Chinese philosophical thought has added more value to the humanistic connotation of ancient Chinese landscape paintings. This paper briefly analyzes the humanistic spirit embedded in ancient Chinese landscape paintings from traditional philosophical thoughts, and constructs a BMAM analysis model from both text and image with multimodal sentiment analysis techniques.

The model was analyzed by arithmetic cases, and the average accuracy of the model was 93.04%, with only 1~2% deviation in the instance analysis of humanistic connotation. Thus, the following suggestions are made for the creation of innovative humanistic connotations in Chinese landscape painting:

(1) Further explore the humanistic connotation. As a major component of China's excellent traditional culture, ancient Chinese landscape painting has a very rich cultural connotation and humanistic core. In the process of contemporary Chinese landscape painting, many painters pursue the similarity to landscape painting and give up the creation and effective expression of humanistic connotation, which is an undesirable way of creation.

(2) Selective absorption of excellent Western ideas. Under the influence of the creative thought of Western landscape painting, one can appropriately accept the excellent Western ideas and draw on them in the creation process of landscape painting. With the excellent Chinese humanistic connotation as the center, supplemented by the techniques of Western painting, thus better enriching the creation of ancient Chinese landscape painting and promoting Chinese landscape painting to the world gradually.

References

C, H. (2019). The Progress of Modernization of Chinese Landscape Painting in the Past 70 Years[*Art Magazine*.

Geng S, L. Y. (2018). The Absentee of Neo-Chinese Landscape Painting Renovation. *Contemporary Artists*.

HUI, J., & JIA, X. (2019). The Translation Strategies of "Wrinkle" in Chinese Landscape Painting. *Sino-US English Teaching, 16*(4), 168-171.

J, C. (2019). Philosophical Interpretation of Chinese Landscape Painting and Landscape Spirit. *Journal of Beijing University of Aeronautics and Astronautics(Social Sciences Edition)*.

Lei Z H, P. S. O., University N. The Dwellers. (2019). Travelers and Sleepers in Chinese Landscape Painting. *Science Economy Society*.

Liu, S., Spiridonidis, C.-V., & Khder, M. A. (2022). Cognitive computational model using machine learning algorithm in artificial intelligence environment. *Applied Mathematics and Nonlinear Sciences, 7*(1), 803-814.

P, Z. (2018). Landscape Expression Application Based on Chinese Landscape Painting Composition. *Ningxia Journal of Agriculture and Forestry Science and Technology*.

Q, W. (2019). Finite Painting, Infinite Meaning: A Study of Horizon in Ancient Chinese Landscape Painting Theory. *Academic Journal of Zhongzhou*.

Q, Z. (2021). Understanding the Profound Power of Traditional Chinese Culture Through Landscape Painting. *Seeking:English, 13*(5), 8.

Qiao, Y. (2020). *The Construction of Urban Human Settlements Combined with Chinese Traditional Landscape Painting in the View of Historical Environment.* Paper presented at the BASIC & CLINICAL PHARMACOLOGY & TOXICOLOGY.

S, C. J. (2019). Chinese landscape painting and the philosophical interpretation of the spirit of landscape. *Journal of Beijing University of Aeronautics and Astronautics (Social Science Edition, 032*(001), 78-83.

S, W. (2019). Social Semiotic Approach to Multimodal Discourse Analysis of Chinese Landscape Painting——A Case Study of Ma Yuan's Ta Ge Tu. *Journal of Beijing Institute of Graphic Communication*.

S, Z. S. (2018). Beyond the Scene-Language and Deductive Sentiment Language——Research on Emotional Context of Chinese Landscape Painting. *Journal of Qiqihar University(Philosophy & Social Science Edition),* .

Shi, J. (2020). Contemporary Expansion of Chinese Landscape Painting. *Journal of Contemporary Educational Research, 4*(6).

T, W. (2019). Research on the Color Tone of Landscape City Based on Chinese Landscape Painting. *Urbanism and Architecture*.

W, W. (2018). University D. A Study on Decorative Language of Chinese Landscape Painting. *Journal of Heihe University*.

Wang, G., Shen, J., Yue, M., Ma, Y., & Wu, S. (2022). A Computational Study of Empty Space Ratios in Chinese Landscape Painting, 618–2011. *Leonardo, 55*(1), 43-47.

Y, Z. (2020). A view from China: Reflecting back on James Elkins' Chinese Landscape Painting. *Journal of Contemporary Painting, 6*((1-2)), 49-54.